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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,704	03/29/2004	Heng-Chih Lin	TI-36612	1352

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EXAMINER

TRINH, SONNY

ART UNIT	PAPER NUMBER
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2618

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/811,704	<b>Applicant(s)</b> LIN ET AL.	
	<b>Examiner</b> Sonny TRINH	<b>Art Unit</b> 2618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-10 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 11 is/are rejected.
- 7) ☒ Claim(s) 3-7 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/29/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1-2, 11** are rejected under 35 U.S.C. 102(b) as being anticipated by Gailus et al. (hereinafter "Gailus"; U.S. Patent Number 6,259,301 B1).

Regarding **claim 1**, with reference to figures 1-2, 6 and descriptions (columns 2-4 and 9), Gailus discloses a current-domain transmitter configured to receive an input signal and provide a transmitted signal (see for example figure 1, input signal at 101 and output at PA 111), the transmitter comprising: a plurality of elements, operatively arranged between the input signal and the transmitted signal (figure 1, plurality elements such as mixer and summer) and configured to represent the input signal with respective electric currents whose respective current magnitudes are each substantially proportional to the input signal (column 9 lines 13-37, claim 6) .

Regarding **claim 2**, Gailus further discloses that a first of the elements is: a current mode mixer (figure 1, mixer 103), operating completely in the current domain (figure 1, since the signal is generated from current generator 101), configured to receive a current-domain signal representing the input signal as an electric current, and

to provide an up-converted current-domain signal from which the transmitted signal is derived (figures 1-2).

Regarding **claim 11**, this claim merely reflects the method claim as opposed to the apparatus claim of claim 1 and is therefore rejected for the same reasons.

***Allowable Subject Matter***

2. **Claims 3-7, 12** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claim 3**, the applied references fail to disclose or render obvious the claimed limitations, specifically wherein a second of the elements is: a current mode amplifier, operating completely in the current domain, configured to receive the up-converted current-domain signal and to output an amplified current-domain signal to a load element from which the transmitted signal is derived.

Regarding **claim 4**, the applied references fail to disclose or render obvious the claimed limitations, specifically wherein a third of the elements is: a current mode filter, operating completely in the current domain, configured to receive differential current signals representing the input signal, and to provide to the current mode mixer the current-domain signal representing the input signal.

Regarding **claim 6**, the applied references fail to disclose or render obvious the claimed limitations, specifically wherein the current mode mixer includes: a first pair of

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transistors configured to receive respective pairs of current signals collectively representing the current-domain signal representing the input signal; and a plurality of up-conversion transistors, responsive to the first pair of transistors and responsive to at least one high-frequency signal, and configured to provide the up-converted current-domain signal from which the transmitted signal is derived.

Regarding **claim 6**, the applied references fail to disclose or render obvious the claimed limitations, specifically wherein the converting step includes: using a current-steering digital-to-analog converter (DAC) to provide differential current signals that represent the input signal; and using a current mode filter operating completely in the current domain to receive the differential current signals that represent the input signal, and to provide the input current-domain signal that is used in the up-frequency-converting step.

3. **Claims 8-10** are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding **claims 8**, the prior art of record fail to show or fairly suggest a current-domain transmitter configured to receive an input signal and provide a transmitted signal, the transmitter comprising: a current-steering digital-to-analog converter (DAC) configured to receive the input signal and to provide differential current signals representing the input signal; a current mode filter, configured to receive the differential current signals representing the input signal, and to provide a filtered version of the differential current signals representing the input signal; a

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current-mode up-conversion mixer configured to receive the filtered version, whose current magnitude is substantially proportional to the input signal, and to apply at least a high frequency carrier signal to an internal current-domain signal within the mixer that also has a current magnitude substantially proportional to the input signal, so as to provide a high-frequency modulated output current-domain signal whose envelope magnitude is substantially proportional to the input signal; and a current-mode power amplifier configured to receive the high-frequency modulated output current-domain signal and to provide an amplified high-frequency modulated output current signal from which the transmitted signal is derived.

### CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny TRINH whose telephone number is 571-272-7927. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward URBAN can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

7/10/06

  
SONNY TRINH  
PRIMARY EXAMINER